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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,750	02/23/2004	Frank Dimeo JR.	2771-546 CIP 2	2238

23448 7590 06/22/2010
INTELLECTUAL PROPERTY / TECHNOLOGY LAW
PO BOX 14329
RESEARCH TRIANGLE PARK, NC 27709

EXAMINER

SAINT SURIN, JACQUES M

ART UNIT	PAPER NUMBER
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2856

MAIL DATE	DELIVERY MODE
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06/22/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/784,750	Applicant(s) DIMEO ET AL.	
	Examiner J M. SAINT SURIN	Art Unit 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2010 and 27 May 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32,35-38 and 40-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 32,37,38,40 and 46 is/are allowed.
- 6) ☒ Claim(s) 1-9,18-21,25-29,35,36 and 47 is/are rejected.
- 7) ☒ Claim(s) 10-17,22-24,30 and 31 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>05/10</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1, 2-9, 18-21, 25-26, 35-36 and 47 have been considered but are moot in view of the new ground(s) of rejection.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. Claims 1, 2-9, 18-21, 25-26, 35-36 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Treitinger et al. (US Patent 4,338,281) in view of Dahm (US Patent 4,019,861) or Hu et al. (US Patent 7,430,897).

Treitinger discloses a thin film semiconductor gas sensor including a metal oxide semiconductor sensor layer whose electrical resistance changes in dependence upon the nature and concentration of a gas being detected and having a heating element integrated therewith (see abstract). Treitinger further discloses two spaced-apart metal contact strips 7 and 8 are vaporized on the sensor layer 6 as shown. Connection wires 9 and 10 are joined to the heating layer 3 via contact strips 4 and 5 and connection wires 11 and 12 are joined to the sensor layer 6 via contact strips 7 and 8. Connection wires 9 and 10 feed a current from a suitable source (not shown) to layer 3 for heating the same and wires 11 and 12 are connected to a resistance sensor (not shown) for determining any changes in electrical resistance in layer 6 upon the presence of a given gas in air. Preferably, the connection wires 9, 10, 11 and 12 have a diameter of about 25 to 100 .mu.m and can be composed of a metal selected from the group consisting of

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platinum, gold, aluminum and **nickel**. Treitinger discloses the heating contacts 16 and 17 are coupled to wires 24 and 25 for feeding a current to doped zone 15 so as to heat the same and sensor contacts 20 and 21 are coupled to wires 22 and 23 for monitoring a resistance of layer 19. Furthermore, referring now to the embodiment illustrated at FIG. 1, a semiconductor body 1, preferably composed of monocrystalline silicon and having a thickness of about 0.38 to 1 mm, is provided with an insulating SiO₂ layer 2 on all sides thereof, except side 1a, i.e., the underside in the illustrated arrangement. The insulating layer 2 has a thickness of at least equal to about 0.1 and not greater than about 1.0 μm . (col. 3, lines 15-23). However, Treitinger does not particularly disclose or suggest the sensor is arranged to generate any output signal correlative of any change in property of a gas sensing filament. Dahm discloses detector 30 may be a thermal conductivity detector containing thermistors or hot wire filaments as is generally well known; the detector elements may, for example, be thermistors or hot wires made of tungsten, tungsten alloys or other suitable materials. Dahm further discloses depending upon the thermal conductivity of the gas in contact with the wire filament, the detector will provide an indication of the concentration of the gas in contact with the wire filament (see: col. 6, lines 32-52). In the alternative, Hu et al. discloses the output of sensor 12, such as a MOS capacitor, in response to a signal applied by wire 40 is sensitive to the concentration of hydrogen gas at the location of sensor 24, thereby allowing the local gas concentration to be determined by sensor 24 and microprocessor 14 (col. 4, lines 30-34). It would have been obvious to one having ordinary skill in the art at the time of the invention to utilize in Treitinger the techniques of Dahm or Hu because

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both generate an output signal corresponding to the change in the of the gas filament in a reliable manner.

Regarding claims 2-6 and 18-21, 35-36, Treitinger discloses thin film gas sensors of the type earlier described are improved by forming the sensor carrier from a semiconductor body which has a shell zone located relatively close to an outer surface of such body (i.e., on or near an outer surface thereof) and which is highly doped, up to the point of degeneration, and which is provided with two spaced-apart metal contact strips for connection to a current source (i.e., for heating connection). Treitinger discloses In a thin film gas sensor as defined in claim 1 wherein said shell zone has a thickness in the range of about 10 to 50 μm . (col. 5, lines 5-7).

Regarding claims 27-29, Treitinger does not disclose a support structure. Rico discloses wherein the filaments are supported at each end by pillars extending upwardly from the substrate, (col. 6, lines 61-65). It would have been obvious to one having ordinary skill in the art at the time of the invention to utilize in Treitinger in view of Dahm or Hu the support of Rico because the pillars provide conductive pathways between the filaments and the means to resistively heat the filaments to make the above combinative more effective.

Allowable Subject Matter

4. Claims 10-17, 22-24, 30-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Claims 32, 37-38, 40 and 46 are allowable in view of the prior art of record.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to J M. SAINT SURIN whose telephone number is (571)272-2206. The examiner can normally be reached on Mondays to Fridays between 9:30 A.M and 6:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron L. Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jacques M SAINT SURIN/
Primary Examiner, Art Unit 2856